

Method and System for Frequency Up-Conversion

Abstract

5 A method and system is described wherein a signal with a lower frequency
is up-converted to a higher frequency. In one embodiment, the higher frequency
signal is used as a stable frequency and phase reference. In another embodiment,
the invention is used as a transmitter. The up-conversion is accomplished by
controlling a switch with an oscillating signal, the frequency of the oscillating
10 signal being selected as a sub-harmonic of the desired output frequency. When
the invention is being used as a frequency or phase reference, the oscillating
signal is not modulated, and controls a switch that is connected to a bias signal.
When the invention is being used in the frequency modulation (FM) or phase
modulation (PM) implementations, the oscillating signal is modulated by an
15 information signal before it causes the switch to gate the bias signal. In the
amplitude modulation implementation (AM), the oscillating signal is not
modulated, but rather causes the switch to gate a reference signal that is
substantially equal to or proportional to the information signal. In the FM and
PM implementations, the signal that is output from the switch is modulated
20 substantially the same as the modulated oscillating signal. In the AM
implementation, the signal that is output from the switch has an amplitude that is
a function of the information signal. In both embodiments, the output of the
switch is filtered, and the desired harmonic is output.

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